SWG Galattico

Francesco de Palma

INFN Bari & Università Telematica Pegaso

F2F Meeting on INFN Physics with CTA

Informazioni principali

- Pagina del WG (poco usata, ma contiene vari link utili):
- https://portal.cta-observatory.org/WG/PHYS/SitePages/Galactic%20Science%20SWG.aspx
- Call mensile del gruppo (ogni 3o lunedi del mese)
- Call mensile del catalogo
- Call mensile del DC-1
- Call periodiche degli altri progetti (e.g. Binarie, Pevatrons ..)

SWG call & group info

- Ultima call 22 Gennaio (da cui sono prese il resto delle slide):
- https://indico.cta-observatory.org/event/1717/
- Prossima call 19 Febbraio
- Roberta Zanin nuovo coordinatore (Jamie è appena ruotato), Luigi Tibaldo nuovo deputy

2017 goals

- ✓ Finalization of the metrics ✓
- ✓ DC1: models & first results ✓
- ✓ Consortium papers: ✗ , but get started

Slides di R. Zanin
22/1/18 Galactic SWG

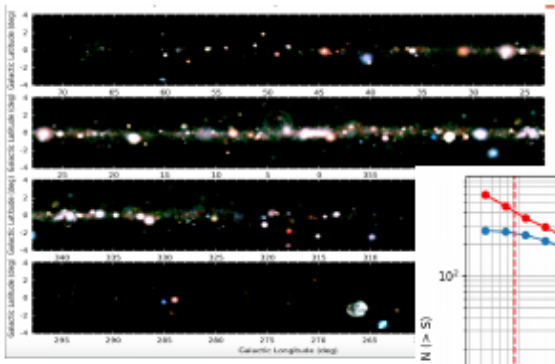
2017 goal no.1: metrics

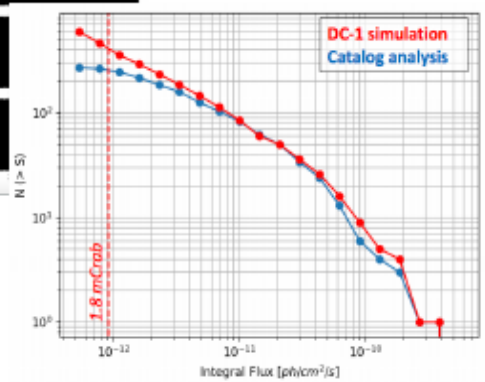
- ✓ GPS/GC/LMC point-source sensitivity (integral >125 GeV)
  - ✓ Baseline 30% better than threshold
  - ✓ Prod3b sensitivities ~40% better than in the TDR
- ✓ Transients: sensitivity on short timescales(<1week,<1day,<1hr)
  - ✓ Baseline 50% better than threshold (>10 TeV)

KSP re-assessment
statements on prioritization & mitigation (40% time reduction) to be finalized
S.Vercellone currently working on a draft version

refer to talks in the LaPalma consortium meeting for further info

2017 goal no.2: DC1

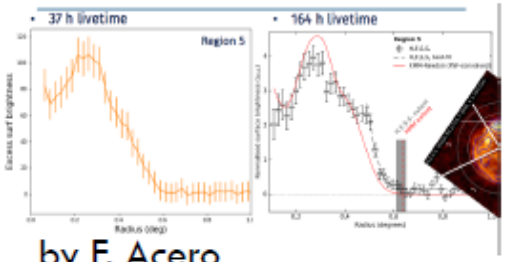




work done by J. Cardenzana, Y. Gallant, C. Deil, A.Donath, R.Zanin

see Josh's & Yves's talk

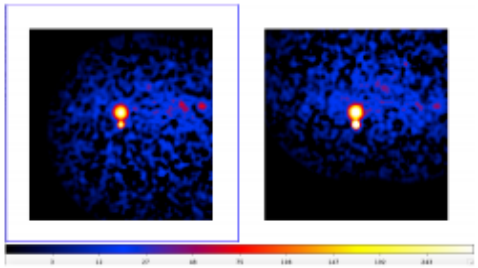
RXJ1713



by F. Acero

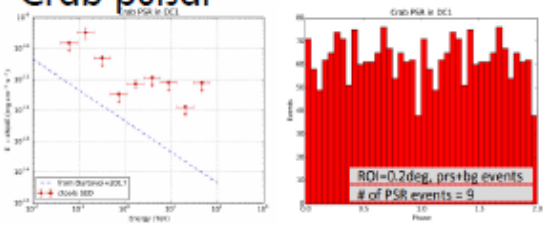
gamma-ray binaries

1DC: PSR B1259-63
before and after periastron



Masha & gamma-ray binaries task group

Crab pulsar



by A.Burtovoi &L.Zampieri

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Main goals for 2018

1. GPS catalog preparation
2. models for DC2 as needed for the consortium papers
3. DC1 wrap-up: closing-out document

4. Favoring advances on existing task groups (PeVatrons, Galactic Center*, LMC*, gamma-ray binaries) whose work may lead to a publication within 1-2 yr from now
   * *suggested as consortium paper*
5. Reactivating the galactic transient task group

6. GPS schedule optimization for periodic and transient signals

2018 goal no. 1: GPS catalog

- ✓ **Analysis pipelines** (see Josh's talk)
  - ✓ until final decision on the science tools is taken, we have two running pipelines: gammapy-based and ctools-based

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- ✓ So far the work of few people: Josh (ctools), Yves (gammapy+sherpa) Axel, Christoph & Roberta (gammapy)
- ✓ more collaboration/coordination is highly desirable

- ✓ **Source association**
  - ✓ New piece of software that reads the analysis pipeline output, plus MWL catalogs
  - ✓ Nothing done so far (to our knowledge)
  - ✓ Task group to be created
  - ✓ define MWL catalogs needed (in collaboration with transient/MWL group)

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- ✓ Kick off of this task group needed

MONTHLY CALL ON GPS CATALOG!

- ✓ **Diffuse background model**
  - ✓ Task of the CR SWG but collaboration is necessary

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- ✓ a task group is formed within the CR SWG, but welcome to join
- ✓ seeVogh call on Friday 26.01 at 14:00 CET

2018 goal no. 2: DC2 models

- ✓ **Interacting SNRs** (see Giuliani's talk)
  - ✓ Task leader: Andrea Giuliani
- ✓ **Young and middle-aged SNRs**
  - ✓ Too many at high latitudes, too many big
  - ✓ Task leader: Pierre Cristofari ?
- ✓ **PWNe**
  - ✓ to be connected to the PSR pop
  - ✓ Including energy-dependent morphologies
  - ✓ Include cutoff to the known ones
- ✓ **Binaries**
  - ✓ phase-dependent spectra
- ✓ **Pulsars**
  - ✓ accounting for different physical assumptions (not only LAT extrapolation)
- ✓ **Transients** of any kind
- ✓ **PeVatrons**
- ✓ **Improving known sources catalogs** (for instance DC1 is missing most of Cygnus srcs)

in parallel to the DC1:

an independent work in view of the coming GPS paper

- ✓ a task group for each model component
- ✓ a task leader for each task group
- ✓ probably to be completed by June-September 2018???
- ✓ preliminary versions for Paris meeting?

2018 goal no. 3: DC1 wrap-up

What to include in the DC1 closing-out document:

- ✓ **PWN & SNR population**
  - ✓ connected to the GPS analysis pipelines
- ✓ **Extended source analysis**
  - ✓ RX J1713: Fabio Acero
  - ✓ W28: Andrea Giuliani & Silvia Crestan
- ✓ **Lightcurve of 1gamma-ray binary**
  - ✓ Masha Chernyakova + D. Malyshev + gamma-ray task group
- ✓ **Phaseogram and spectrum of 1 pulsar**
  - ✓ A. Butkovoi

any further suggestion and study is welcome just drop an e-mail

Conclusioni

- Gruppo relativamente grande
- Vari argomenti in sviluppo
- Possibilità di collaborazione
- Sarebbe utile focalizzarci su un argomento